UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,996	02/25/2002	Akihiko Nagano	1232-4825	5742

27123 7590 11/26/2004

MORGAN & FINNEGAN, L.L.P.
3 WORLD FINANCIAL CENTER
NEW YORK, NY 10281-2101

EXAMINER	
YAM, STEPHEN K	
ART UNIT	**PAPER NUMBER**
2878	

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/083,996	NAGANO, AKIHIKO	
	Examiner	Art Unit	
	Stephen Yam	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7,9,11-13,18-22 and 24-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7,9,11-13,18-22 and 24-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to Amendments and remarks filed on September 14, 2004. Claims 1, 3-7, 9, 11-13, 18-22, and 24-30 are currently pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-5, 7, 9, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Stauffer US Patent No. 4,410,804.

Regarding Claim 1, Stauffer teaches (see Fig. 1 and 3) an image sensing element (15, 19) to be used for an image sensing apparatus having an image sensing lens (10), and arranged to sense an image formed by the image sensing lens (see Col. 2, lines 49-47), the image sensing element comprising a plurality of microlenses (17), and a plurality of light-receiving portions (19, 20) arranged so as to correspond to the respective microlenses (see Col. 2, lines 16-21), wherein each light-receiving portion includes first (left quadrant- see Fig. 3), second (right quadrant- see Fig. 3), and third (top+bottom quadrant- see Fig. 3) light-receiving regions each outputting a signal (see Col. 2, lines 25-33), the first and second light-receiving regions having substantially symmetrical shape (see Fig. 1) and being arranged to sandwich the third light-receiving region (see Fig. 3), the width of center portions of the first and second light-receiving regions being wider than the width of a center portion (converged to a zero width between the

top and bottom quadrants) of the third light-receiving region, and the width (converged to a zero width) of peripheral (top or bottom) portions of the first and second light-receiving regions (see Fig. 1 and 3) being narrower than the width (across the arc) of a peripheral portion (top or bottom) of the third light receiving region.

Regarding Claim 3, Stauffer teaches the first and second light-receiving regions used to at least detect a focus state of the image sensing lens (see Col. 2, lines 25-33).

Regarding Claim 4, Stauffer teaches the first and second light-receiving regions used to detect a focus state of the image sensing lens and photograph an object (see Col. 2, lines 25-33 and 39-47).

Regarding Claims 5 and 13, Stauffer teaches one of the first and second light-receiving regions receiving a beam from one of two predetermined regions on a pupil of the image sensing lens and the other of the first and second light-receiving regions receiving a beam from the other of the two predetermined regions on the pupil of the image sensing lens, the two predetermined regions being regions that sandwich an optical axis (as seen in Figs. 10 and 11 of US Patent No. 4,185,191 incorporated by reference (see Col. 1, lines 7-22 and Col. 2, lines 21-23)).

Regarding Claim 7, Stauffer teaches a function of individually outputting charges accumulated in the first, second, and third light-receiving regions (see Col. 2, lines 25-38 and Col. 3, lines 2-21), and a function of outputting a sum of charges accumulated in the first, second, and third light-receiving regions (ie.- combining all detector outputs within the pixel for the pixel signal) (see Col. 2, lines 43-47).

Regarding Claim 9, Stauffer teaches (see Fig. 3) the third light-receiving region as narrower than a width of each of the first and second light-receiving regions at a center and

relatively wider than the width of each of the first and second light-receiving regions at two ends (top and bottom).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 6, 18-22, 24-27, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stauffer in view of Nakahara US Patent No. 6,195,509.

Regarding Claims 6, 18-22, 24-27, and 30, Stauffer teaches the device in Claim 1, according to the appropriate paragraph above. Regarding Claim 18, Stauffer teaches a control unit (26, 32) arranged to detect a focus state of the image sensing lens (see Col. 2, lines 25-38). Regarding Claim 19, Stauffer teaches the control unit controlling photographing operation so as to photograph an object by using the first and second light-receiving regions (see Col. 2, lines 43-55). Regarding Claim 22, Stauffer teaches the control unit individually reading out charges accumulated in the first, second, and third light-receiving regions (see Col. 2, lines 25-38 and Col. 3, lines 2-21), and reading out a sum of charges accumulated in the first, second, and third light-receiving regions in photography (ie.- combining all detector outputs within the pixel for the pixel signal) (see Col. 2, lines 43-47). Regarding Claim 24, Stauffer teaches the first and second light-receiving regions receiving beams from two predetermined regions on a pupil of the image sensing lens, the two predetermined regions being regions that sandwich an optical axis

(as seen in Figs. 10 and 11 of US Patent No. 4,185,191 incorporated by reference (see Col. 1, lines 7-22 and Col. 2, lines 21-23)). Regarding Claims 25-27, Stauffer teaches (see Fig. 3) the third light-receiving region as narrower than a width of each of the first and second light-receiving regions at a center and relatively wider than the width of each of the first and second light-receiving regions at two ends (top and bottom). Regarding Claim 30, Stauffer teaches an image processing apparatus (see Fig. 1) comprising the image sensing apparatus of Stauffer. Regarding Claim 18, Stauffer also does not teach the control unit arranged to perform focus adjustment. Regarding Claims 6, 20, and 21, Stauffer does not teach the third light-receiving region used to determine a time during which charges are accumulated in the first and second light-receiving regions, for exposure. Nakahara teaches a similar device, with a first light-receiving region (1D), a second light-receiving region (2D), and a third light-receiving region (6L), also having a control unit (100) arranged to detect a focus state of the image sensing lens and perform focus adjustment (see Col. 5, lines 13-17 and Col. 7, line 63 to Col. 8, line 3), wherein the first light-receiving region and second light-receiving region sandwich the third light-receiving region, and the control unit determines by using the third light-receiving region is used, a time during which an image is exposed (for exposure/photometering, corresponding to the time for which charges are accumulated in the first and second light-receiving regions of Stauffer to capture the image) (see Col. 2, lines 61-63 and Col. 5, lines 34-42) during focus adjustment (see Col. 5, lines 34-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the third light-receiving region to determine a time during which charges are accumulated in the first and second light-receiving regions, and to use the control unit to perform focus adjustment, as taught by Nakahara, in the device of

Stauffer, to provide exposure determination for optimal image capturing and produce a clear image for photography or further image processing/recognition.

5. Claims 11, 12, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stauffer (in view of Nakahara for Claims 28 and 29), further in view of Hayashi et al. US Patent No. 4,562,346.

Stauffer (in view of Nakahara for Claims 28 and 29) teach the device and apparatus in Claims 1 and 18, according to the appropriate paragraph above. Stauffer does not teach a region formed from the first, second, and third light-receiving regions having a substantially regular polygonal shape, or having a shape substantially obtained by cutting off each corner of a square. Hayashi et al. teach (see Fig. 12) a similar device, with a plurality of light-receiving portions ((21A-1,21B-1), (21A-2,21B-2)), each light-receiving portions (21A-1, 21B-1) including multiple light-receiving regions (21A-1 + 21B-1), wherein a region formed from the multiple light-receiving regions has a substantially regular polygonal shape (see Fig. 12 and Col. 8, lines 40-47) and has a shape substantially obtained by cutting off each corner of a square (see Fig. 12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a region formed from the light-receiving regions as having a substantially regular polygonal shape, or having a shape substantially obtained by cutting off each corner of a square, as taught by Hayashi et al., in the device of Stauffer (in view of Nakahara for Claims 28 and 29), to easily fabricate the light-receiving regions according to a standard shaping technique.

Response to Arguments

6. Applicant's arguments filed September 14, 2004 have been fully considered but they are not persuasive.

Regarding Applicant's arguments on the Stauffer reference, Applicant argues that Stauffer does not teach the width of center portions of the first and second light-receiving regions being wider than the width of a center portion of the third light-receiving region, as the top and bottom quadrants corresponding to the third light-receiving region are separated and there is no width in the central portion of the top and bottom quadrants. Examiner asserts that the top and bottom quadrants each converge into a zero width towards the center of the pixel/quadrant, so therefore, a center portion of the third light-receiving region contains a zero width, and hence, is narrower than the positive width of center portions of the first and second light-receiving regions. In addition, the bottom tip of the top quadrant and the top tip of the bottom quadrant can also be considered within a "central portion" of the third light-receiving region, and the two tips contain a zero width.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571)272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SY

SY

THANH X. LUU
PATENT EXAMINER